



Attorney's Docket No.: 01/363002 / CIT 2885-P2

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2631

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Marvin K. Simon et al.

Art Unit: 263

Serial No.: 09/496,135

Examiner: T. Gheorghe Vasae

Filed : February 1, 2000

Title : CROSS CORRELATED TRELLIS CODED QUADRATURE MODULATION
TRANSMITTER AND SYSTEM

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BRIEF ON APPEAL

Sir:

Applicant herewith files this brief on appeal under rule

192. The subject headings required by rule 192 C. follow

(1) Real Party in Interest

The case is assigned of record to California Institute of
Technology, who is hence the real party in interest.

BOARD OF PATENT APPEALS
AND INTERFERENCES

(2) Related Appeals and Interferences

There are no known related appeals and/or interferences.

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(3) Status of Claims

Apparently only claim 6 is pending and considered in this

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case.

(4) Status of Amendments

No amendment(s) have been filed after the Final Rejection.

(5) Summary of Invention

The present invention teaches a special cross correlated trellis coded quadrature modulation device. The system focuses on the spectral occupancy of the transmitted signal. The system maps different sets of values to different waveforms. By invoking certain properties on the waveforms, they may become, more power and spectrally efficient. See page 11 lines 16-18. The specification describes that to prevent discontinuities at the signal transition time instance, the waveforms should have a zero-value first derivative at those end points. See page 12, lines 10-13. Figure 4 shows an example of the signal set techniques for these requirements. These signal sets are defined for full symbol waveforms.

Figure 5 shows a prior art FPQSK system. This operation defines mapping by half symbols. In contrast, the present embodiment describes restructuring to map by full symbols. However, by using these specific techniques, an FQPSK signal can be produced which has no slope discontinuities.

(6) Issues

The issues for review are:

Is the declaration defective?

Is claim 6 properly rejected under 35 USC 102(b) as being anticipated by U.S. patent No. 4,567,602 to Kato?

(7) Grouping of Claims

Since there is only one claim, the claims do not rise and fall together.

(8) Argument

Rejections under section 102

Claim 6 stands rejected under 35 USC 102 as allegedly being unpatentable over the '602 patent. The rejection states that the '602 patent discloses a method of coding signals by producing FQPSK that has no slope discontinuities. However, it is respectfully suggested that the rejection does not meet the patent office's burden of providing a *prima facie* showing of unpatentability. In fact, the signal formed in the 602 patent would have the slope discontinuities as explained throughout the present specification. This shows how there can be errors at the crossing point. This was not understood prior to the present invention. The reason why there can be errors at the

crossing point can easily be seen from figure 6. Because figure 6 maps the I and Q signals over half symbol combinations, there may be a slope discontinuity at the location between adjacent half symbol boundaries. This is clearly disclosed in the present specification, for example, page 12 - 14. Nowhere is there any teaching or suggestion of how to avoid this slope discontinuity in '602. Clearly the present specification explains that the inventor has found the existence of such a slope discontinuity in conventional FQPSK systems such as shown in '602. Because of this, it is respectfully suggested that the rejection does not meet the patent office's burden of providing a *prima facie* showing of unpatentability. '602 would have all of the problems which were described in the current specification. '602 does nothing to avoid those problems. Therefore, once again, as the current inventors discovered, '602 would have a slope discontinuity. As such, it is respectfully suggested that claim 6 should be allowable.

Other rejections

The declaration stands objected to as being missing. However, a rule 47(b) petition was filed on June 9, 2000. This rule 47 (b) petition makes out a showing of facts as to why the inventor refuses to sign. As such, it is respectfully suggested that this rule 47 be petition obviates the rejection about a

missing declaration.

The brief fee of \$160 is enclosed. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/22/01



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Appendix of Claims

6. A method of coding signals comprising producing a FQPSK that has no slope discontinuity.